

REMARKS

Claims 1 - 14 are pending in the present application.

Applicants note with appreciation that the Examiner has allowed claims 7 - 10.

In page 2 of the Office Action, claims 1 - 6 and 11 - 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Applicants amended claims 1, 4, 5, 6 and 11 to recite third and fourth light beams, rather than fifth and sixth light beams. Applicants also amended claim 6 to delete recitals of ordinal numbers (i.e., first, second, etc.) where such recitals do not appear to be necessary, and to use the term "recombiner" instead of third and fourth beam splitters. Reconsideration and withdrawal of the section 112 rejection are respectfully requested.

Applicants respectfully submit that the amendments to claims 1, 4, 5, 6 and 11 do not narrow the meaning of any term of the claims, and as such, the doctrine of equivalents should be available for all of the elements of all of the claims.

On page 3 of the Office Action, claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,218,418 to Layton (hereinafter "the Layton patent"). The Office Action indicated that the previously recited "whereby" clause did not define any structure. Applicants amended claim 6 to recite the term "wherein" rather than "whereby", and urge that the language after the "wherein" clause be given patentable weight.

Claim 6 provides for an apparatus for determination of a property of an optical device under test. The apparatus includes, *inter alia*, a first power detector for detecting power of a first superimposed light beam, and a second power detector for detecting power of a second superimposed light beam. The outputs of the first and second power detectors are connected with an evaluation unit for (a) detecting a time dependence of a tuning gradient, (b) using a time-delay for compensating an external and/or an internal

time-delay, and (c) deriving an optical property of the optical device under test from the compensated optical frequency dependencies of the detected powers.

The Layton patent is directed to a differential fiber optic sensor. Two interferometers are exposed to a parameter to be measured, wherein an increase of a field quantity to be measured causes an increase of a delay time difference of one of the interferometers, and a decrease of a delay time difference of the other interferometer (Abstract). The Layton patent states, at col. 3, lines 41 – 46:

The arms 18 and 20 are packaged so as to be insensitive to changes in the measured parameter and will be called, "reference arms." The arms 16 and 22 are sensitized to changes in the measured parameter. They are typically arms of a fiber optic hydrophone sensor, and they will be called, "sensor arms."

Fibers 16 and 18 are configured such that the differential round trip delay increases for an increase in a sensed field (col. 3, lines 64 – 66), and fibers 20 and 22 are configured so that the differential round trip delay decreases for an increase in the sensed fields (col. 4, lines 18 – 20). Thus, the configured differences in time delay between various paths are essential for measurement of the field parameter of interest.

The Layton patent's **reliance on a configured differential round trip delays for measurement of the field parameter** is inconsistent with **compensating a time delay**. Consequently, the Layton patent does not disclose using a time-delay for compensating an external and/or an internal time-delay, as recited in claim 6.

Also, in the Layton patent, the field parameters are described, for example, as sound, pressure and temperature (col. 1, lines 12 – 13). Such field parameters are not suggestive of, much less descriptive of, an optical property of an optical device under test. Thus, **the measurement of a field parameter as described in the Layton patent, is not a determination of a property of an optical device under test**. Moreover, on page 4 of the Office Action, albeit in a discussion of claim 14, the Office Action states, "Layton's device fails to disclose an optical device under test being tested by the system."

As such, the Layton patent does not expressly disclose or suggest deriving an optical property of an optical device under test, as recited in claim 6.

In view of the aforementioned differences between the disclosure in the Layton patent and claim 6, the Layton patent does not anticipate claim 6. Applicants respectfully request reconsideration and withdrawal of the section 102(b) rejection of claim 6.

On page 4 of the Office Action, claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Layton patent in view of U.S. Patent No. 5,202,745 to Sorin et al. (hereinafter "the Sorin et al. patent").

Claim 14 depends from claim 6, and further recites that the optical device under test is a hetrodyne optical network analyzer. The Office Action recognizes that the Layton patent fails to disclose an optical device under test being tested by the system, and so introduces the Sorin et al. patent for its disclosure of a device under test (DUT) 12.

As a first point, the Sorin et al. patent does not make up for the deficiencies of the Layton patent as the Layton patent relates to claim 6. That is, (a) the Sorin et al. patent does not appear to disclose or suggest using a time-delay for compensating for a time delay, and (b) even if the Sorin et al. patent discloses a device under tests, it cannot make up for the fact that the Layton patent is for measuring a field parameter rather than for determination of a property of an optical device under test.

Moreover, Applicants do not believe that the Layton and Sorin et al. patents can be legitimately combined to make out a section 103 rejection as suggested in the Office Action. As explained above in support of claim 6, in the Layton patent, fibers 16, 18, 20 and 22 are configured to provide delays to facilitate a measurement of a field parameter. Mirrors 24, 26, 28 and 30 are located at ends of fibers 16, 18, 20 and 22, and thus influence the delays. Substituting DUT 12 from the Sorin et al. patent in place of any of mirrors 24, 26, 28 and 30 would change the delay in the Layton patent and interfere with its ability measure the field parameter. Thus, the cited combination of the Layton and

Sorin et al. patents would apparently **render the Layton patent unsatisfactory for its intended purpose.**

In summary, with respect to the rejection of claim 14, (a) the cited combination of the Layton and Sorin et al. patents does not appear to disclose or suggest using a time-delay for compensating for a time delay, (b) the Sorin et al. patent cannot make up for the fact that the Layton patent is for measuring a field parameter rather than for determination of a property of an optical device under test, and (c) the cited combination of the Layton and Sorin et al. patents would render the Layton patent unsatisfactory for its intended purpose. Consequently, claim 14 is patentable over the cited combination of the Layton and Sorin et al. patents.

Applicants respectfully request reconsideration and withdrawal of the section 103(a) rejection of claim 14.

On page 4 of the Office Action, claims 1, 5, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Layton patent in view of the Sorin et al. patent.

Claim 1 provides for a method of determination of an optical property of an optical device under test. The method includes, *inter alia*, (a) detecting power of a first superimposed light beam for deriving a first signal, (b) detecting power of a second superimposed light beam for deriving a second signal, (c) compensating a time-delay between the first signal and the second signal, and (d) deriving a frequency dependency of the first signal for deriving the optical property of the optical device under test.

As discussed above in support of claim 6, in the Layton patent, the **differences in time delay between various paths are essential** for measurement of the field parameter of interest. Such a reliance is inconsistent with **compensating a time-delay**, as recited in claim 1. Also, in claim 1, the first and second signals are derived from detecting power of superimposed light beams. Neither of the Layton patent nor the Sorin et al. patent appear to disclose or suggest compensating **a time delay between signals derived from**

detecting power of superimposed light beams. Thus, the cited combination of references fails to disclose or suggest compensating a time-delay between the first signal and the second signal, as recited in claim 1.

Furthermore, as discussed above in support of claim 14, (a) the Sorin et al. patent cannot make up for the fact that the Layton patent is for measuring a field parameter rather than for determination of a property of an optical device under test, and (b) the cited combination of the Layton and Sorin et al. patents would apparently render the Layton patent unsatisfactory for its intended purpose.

Applicants respectfully submit that claim 1 is patentable over the cited combination of the Layton and Sorin et al. patents.

Claims 5 and 11 are independent claims. Each of claims 5 and 11 include recitals similar to that of claim 1 as described above. As such, claims 5 and 11 are patentable over the cited combination of the Layton and Sorin et al. patents for reasons similar to that of claim 1.

Claim 13 depends from claim 5. Thus, claim 13 is also patentable over the cited combination of the Layton and Sorin et al. patents.

Applicants respectfully request reconsideration and withdrawal of the section 103(a) rejection of claims 1, 5, 11 and 13.

On page 5 of the Office Action, claims 2 – 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the Layton and Sorin et al. patents, further in view of U.S. Patent No. 5,227,623 to Heffner (hereinafter “the Heffner patent”).

Claims 2 – 4 and 12 depend from claim 1. The Office Action introduces the Heffner patent for its teaching with regard to use of a Jones matrix and similar

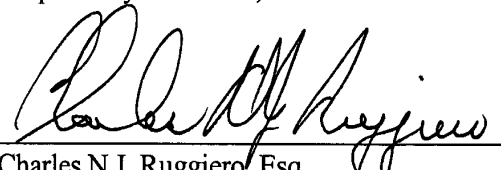
mathematical computations for chromatic and polarization tests. The Heffner patent does not make up for the deficiencies of the Layton and Sorin et al. patents as they relate to claim 1. Moreover, notwithstanding any teaching in the Heffner patent, it cannot overcome the improper combination of the Layton and Sorin et al. patents since such a combination renders the Layton patent unsatisfactory for its intended purpose. Consequently, claims 2 – 4 and 12 are patentable over the cited combination of the Layton, Sorin et al. and Heffner patents.

Applicants respectfully request reconsideration and withdrawal of the section 103(a) rejection of claims 2 – 4 and 12.

In view of the foregoing, Applicants respectfully submit that all claims presented in this application patentably distinguish over the prior art. Accordingly, Applicants respectfully request favorable consideration and that this application be passed to allowance.

Respectfully submitted,

August 15, 2003
Date


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